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Description

Automatic switching between mobile radios

5 The present invention relates to switching relating to use between two mobile radios for one subscriber. If a subscriber wishes to use a mobile radio in a mobile radio system such as GSM/GPRS or UMTS, the mobile radio or the terminal must be equipped with a so-called SIM
10 (Subscriber Identity Module). This SIM authorizes the subscriber within the mobile radio system or in the network. If one subscriber is using two or more terminals, then the subscriber is authenticated in the network once again by the respective SIM for each
15 terminal that is used. This means that, for example, when one subscriber is using two terminals, he has two SIM cards with two different telephone numbers, which are billed by two different accounts. In order to simplify the use of two terminals for one subscriber in terms of billing and use, providers offer so-called
20 twin cards. A twin card operates on the following principle: one and the same account is maintained for two SIM cards with one telephone number, and is passed to the respective terminal in the network by means of call diversion. In this case, the call diversions in
25 the network are switched such that calls are handled on the most recently registered terminal. The second, unused terminal should always be switched off, for safety. If a subscriber wishes to change from a terminal which is equipped with a twin card to another
30 terminal, then he must take care to ensure that the appliance which he currently wishes to use is the last which was registered in the mobile radio system or the network. This is highly inconvenient in particular when he wishes to change over for only a short time
35 interval. Accordingly, only manual switching between two terminals has been possible until now. The subscriber must ensure that the terminal which he

wishes to use for communication at that time was the last to be registered in the network.

One object of the invention was accordingly to provide
5 a method and a communications system by means of which it is possible to switch between mobile radios automatically.

This object is achieved by the method according to the
10 invention as claimed in claim 1, and by a mobile radio system according to the invention as claimed in claim 6. Further advantageous embodiments are specified in the appropriate dependent claims.

15 Claim 1 provides a method for switching from a first mobile communications appliance to a second mobile communications appliance for one subscriber, with the first and the second mobile communications appliance having a common telephone number and being billed via a
20 common account, and with the switching being carried out automatically by means of signaling between the first and the second mobile communications appliance via a wire-free interface.

25 According to the invention, switching from one terminal or mobile communications appliance to another in a network is activated automatically. In this case, according to the invention, a switching procedure is initiated automatically by means of signaling via a
30 wire-free interface.

An interface based on short-distance radio technology is preferably used as the wire-free interface in this case.

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It is particularly preferable in this case for the wire-free interface to be a Bluetooth interface.

When a mobile terminal or communications appliance with a Bluetooth interface comes within range of another mobile communications appliance, then this is identified via the Bluetooth interface. In order that only authorized people are ensured automatic access to the second mobile communications appliance, an authentication procedure with respect to the subscriber is preferably provided. For example, a security mechanism which is integrated in the Bluetooth technology can be activated for this purpose.

In one preferred embodiment of the method according to the invention, the authentication procedure is carried out by checking a subscriber PIN. In this case, the subscriber PIN is then stored in the appropriate terminal or mobile communications appliance. The terminal can then be accessed once again without any PIN check. Once a subscriber has been registered, an algorithm must monitor whether the mobile communications appliances are at different ranges. To do this, one mobile communications appliance transmits a so-called beacon at specific time intervals. The other mobile communications appliance responds to the beacon, and then waits for the next beacon. Since systems such as Bluetooth necessarily have mechanisms such as these by virtue of the system design, a so-called beacon channel for a so-called park mode can be used for monitoring in this case. If there is no response from the other mobile communications appliance, then the original mobile communications appliance is activated, and the system switches back to it.

The advantage of the present invention is that the proximity of the subscriber is identified via a wire-free, preferably short-distance radio, technology, and a change between the corresponding mobile communications appliances is signaled to the network by signaling. This allows automatic switching between two

mobile communications appliances for a twin card system.

5 The present invention also covers a mobile radio system comprising at least one first and one second communications appliance of a subscriber, with the first and the second mobile communications appliance having a common telephone number, being billed via a common account, and the first and the second
10 communications appliance each having a wire-free interface via which it is possible to switch automatically between the first and the second communications appliance.

15 The wire-free interface is preferably an interface based on short-distance radio technology, in particular a Bluetooth interface.

In one particularly preferred embodiment of the mobile
20 radio system according to the invention, a subscriber authentication procedure can be carried out.

As already inscribed, this should preferably be carried out by means of a PIN check.

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Further advantages of the present invention will be explained in more detail with reference to the following figure, in which:

30 Figure 1 shows a schematic illustration of a procedure for one embodiment of a method according to the invention.

Figure 1 shows an autocommunication system in the form
35 of a GSM/GPRS communication module 1 and a mobile telephone 2, which are located within a mobile radio network. Both communications appliances 1, 2 are equipped with a twin card. The twin card is used

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primarily in the automobile field. In this case, the GSM/GPRS communication module 1 is installed in a car and is optimized to the environment in the car. If the subscriber also has a mobile telephone 2, he must use a twin card system. When the subscriber with the mobile telephone 2 comes within range of the Bluetooth cell 3 of the GSM/GPRS communication module 1, which is installed in the car, then the mobile telephone 2 is registered via a wire-free interface, particularly preferably via a Bluetooth interface 4, automatically with the GSM/GPRS communication module 1. This registration can preferably also be protected by a PIN input, in order to ensure authentication. Once the mobile telephone 2 has successfully registered with the GSM/GPRS communication module 1 in the car, then the GSM/GPRS communication module 1 registers the change in the active state with the mobile radio network. A change in the active state from the mobile telephone 2 to the GSM/GPRS communication module 1 is thus activated automatically on entering the car. When the subscriber goes beyond the range of the Bluetooth cell 3 in the car, then the installed GSM/GPRS communication module 1 is deregistered after a timer has timed out, that is to say after a time interval, and the mobile telephone 2 is registered with the mobile radio network.